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FEDERAL - STATE - PRIVATE
COOPERATIVE SNOW SURVEYS

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CURRENT SERIAL RECORDS

WATER SUPPLY OUTLOOK
and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS
for
COLORADO and NEW MEXICO

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE
and
COLORADO AGRICULTURAL EXPERIMENT STATION
STATE ENGINEER of COLORADO
and STATE ENGINEER of NEW MEXICO

Data included in this report were obtained by the agencies
named above in cooperation with the Bureau of Reclamation,
U.S. Forest Service, National Park Service, Corps of Engineers
and other Federal, State, and private organizations.

**SPECIAL
MEASUREMENT**

UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

To Recipients of Water Supply Outlook Reports:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season as they affect runoff will add to be an effective average. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

Listed below are water supply outlook reports based on Federal-State-Private Cooperative snow surveys. Those published by the Soil Conservation Service may be obtained from Soil Conservation Service, Room 507, Federal Building, 701 N. W. Glisan, Portland, Oregon 97209.

PUBLISHED BY SOIL CONSERVATION SERVICE

<u>REPORTS</u>	<u>ISSUED</u>	<u>LOCATION</u>	<u>COOPERATING WITH</u>
RIVER BASINS			
WESTERN UNITED STATES	MONTHLY (FEB.-MAY)	PORTLAND, OREGON	ALL COOPERATORS
BASIC DATA SUMMARY	OCTOBER 1	PORTLAND, OREGON	ALL COOPERATORS
STATES			
ALASKA	MONTHLY (MAR.-MAY)	PALMER, ALASKA	ALASKA S.C.D.
ARIZONA	SEMI-MONTHLY (JAN.15 - APR.1)	PHOENIX, ARIZONA	SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
GOLORADO AND NEW MEXICO	MONTHLY (FEB.-MAY)	FORT COLLINS, COLORADO	COLO. STATE UNIVERSITY COLO. STATE ENGINEER N. MEX. STATE ENGINEER
IDAHO	MONTHLY (JAN.-JUNE)	BOISE, IDAHO	IDAHO STATE RECLAMATION ENGINEER
MONTANA	MONTHLY (JAN.-JUNE)	BOZEMAN, MONTANA	MONT. AGR. EXP. STATION
NEVADA	MONTHLY (JAN.-MAY)	RENO, NEVADA	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES - DIVISION OF WATER RESOURCES
OREGON	MONTHLY (JAN.-JUNE)	PORTLAND, OREGON	OREG. STATE UNIVERSITY OREGON STATE ENGINEER
UTAH	MONTHLY (JAN.-JUNE)	SALT LAKE CITY, UTAH	UTAH STATE ENGINEER
WASHINGTON	MONTHLY (FEB.-JUNE)	SPOKANE, WASHINGTON	WN. STATE DEPT. OF CONSERVATION
WYOMING	MONTHLY (FEB.-JUNE)	CASPER, WYOMING	WYOMING STATE ENGINEER

PUBLISHED BY OTHER AGENCIES

<u>REPORTS</u>	<u>ISSUED</u>	<u>AGENCY</u>
BRITISH COLUMBIA	MONTHLY (FEB.-JUNE)	WATER RESOURCES SERVICE, DEPT. OF LANDS. FOREST AND WATER RESOURCES, PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFORNIA	MONTHLY (FEB.-MAY)	CALIF. DEPT. OF WATER RESOURCES, P.O. BOX 388, SACRAMENTO, CALIF.

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EARLY SEASON SNOW REPORT FOR COLORADO

January 1, 1966

Water Supply Outlook
Federal-State-Private-Cooperative Snow SurveysSnow Survey Section
Soil Conservation Service
Colorado State University
Fort Collins, ColoradoReport Prepared by
Jack N. Washichek and
Donald W. McAndrew
Soil Conservation Service

SNOW COURSE	Current Information			Past Record		
	Date of Survey	Snow Depth	Water Content	Water Content In Inches		
		Inches	Inches	Jan. 1	Jan. 1	Feb. 1
				1948-62	Last Year	1948-62 Average
Berthoud Summit	12/28	24	6.1	8.4*	8.6	12.3*
Columbine Lodge	12/30	32	8.0	7.7*	12.1	15.7
Fremont Pass	12/28	22	4.5	6.1*	9.6	10.7
Mesa Lakes	12/30	32	8.9	5.2**	8.6	10.8
Porphyry Creek	12/30	27	6.0	7.4*	10.3	10.5
Red Mountain		NS		11.6	16.5	18.0*
Spud Mountain	12/29	64	15.6	8.6*	15.1	16.7*
Tennessee Pass	12/29	20	4.0	3.5**	7.3	6.4
University	12/30	22	5.5	8.1	NS	12.9
Upper San Juan	12/30	78	20.3	12.2*	19.8	21.7
Vail Pass	12/29	28	7.0	5.4*	10.9	10.9*
Wolf Creek Pass	12/30	71	20.0	9.4*	18.8	19.3
Wolf Creek Summit	12/30	81	21.3	13.1*	18.7	19.1*

* Averages adjusted to 1948-62 period.

** Less than 5 years averaged.

The early season snow cover varies widely over Colorado this year. In the headwaters of the Colorado River and the front range streams of the South Platte, the snow cover is currently 70% of the average. In the South Western part of the State, the snow is currently 180% of average. This is more snow than last year at this time. The Arkansas Basin is about 90% of average, but only one-half as good as last year. The Rio Grande is loaded again this year. Currently the snow pack is 163% of normal in the Wolf Creek Pass area.

Mountain soils under the snow are very moist this season. This condition will increase our chances for a good snow melt runoff this coming spring.

Only about one-third of the snow season has passed. Most of the State is off to a good start. More snow will be needed in the South Platte and Arkansas Basins to ensure normal runoff. But both of these areas have excellent reservoir storage.

WATER SUPPLY OUTLOOK

Federal-State-Private Cooperative Snow

Federal-State-Private Cooperative Snow Surveys Special Snow Report for Colorado and Wyoming

SOIL CONSERVATION SERVICE
Snow Survey Section
Colorado State University
Fort Collins, Colorado

May 15, 1966

Report Prepared by
Jack N. Washichek and
Donald W. McAndrew
Soil Conservation Service

Snow Course	Date	Current Information		Past Record		
		Snow Depth In Inches	Water Content In Inches	May 15 1965	May 15 Avg.	May 1 Avg.
<u>Colorado</u>						
Cameron Pass	5/12	38	12.9	34.6	25.3	28.1
Willow Creek Pass	5/12	9	2.4	10.9	6.8	12.0
Park View	5/12	0	0.0	4.6	2.0	6.8
Columbine Lodge	5/13	0	0.0	22.5	13.9	22.9
Berthoud Summit	5/12	32	9.9	23.1	21.7	21.6
Red Mountain	5/13	44	17.0	35.8	30.7	31.4
Fremont Pass	5/13	26	7.9	21.2	14.6	19.5
Tennessee Pass	5/13	0	0.0	6.2	0.0	8.5
Vail Pass	5/13	6	1.4	20.0	10.4	16.3
Porphyry Creek				24.0	14.0	17.7
Mesa Lakes	5/11	1	0.4	17.5	9.3	15.9
Wolf Creek Pass	5/13	12	6.2	37.3	16.2	24.7
Wolf Creek Summit	5/13	67	29.5	48.6	31.5	30.2
Spud Mountain	5/13	35	12.1	35.9	19.5	23.8
Upper San Juan	5/13	16	6.8	39.3	21.6	30.2
Two Mile	5/11	28	8.6	22.7	17.2	19.8
University Camp	5/15	12	4.2	25.0	21.4	24.9
Milner Pass	5/13	4	0.8	14.6	—	12.1
<u>Wyoming</u>						
Bottle Creek	5/16	0	0.0	12.6	4.5	11.1
Webber Springs	5/16	4	1.6	17.9	8.0	15.8
Old Battle	5/16	46	19.8	36.6	27.4	33.2
No. French Creek	5/16	49	22.6	30.9	29.6	32.7
No. Barrett Creek	5/16	20	9.7	22.7	16.9	20.4
Ryan Park	5/16	0	0.0	5.8	3.8	7.7

Most of this year's low to medium elevation snow pack has already melted. The very high elevation snow pack is all that remains. The storm of May 11 and 12th added as much as 6" of snow with 1" of water content to the high elevations. The storm was probably more beneficial to the plains and high meadows than to the over-all water supply outlook. Less than 1/2 of average snow pack for this date remains.

WATER SUPPLY OUTLOOK

Federal-State-Private Cooperative Snow Surveys
Special Snow Report
for
Colorado and Wyoming

SOIL CONSERVATION SERVICE
 Snow Survey Section
 Colorado State University
 Fort Collins, Colorado

June 1, 1966

Report Prepared by
 Jack N. Washichek and
 Donald W. McAndrew
 Soil Conservation Service

Snow Course	Date	Current Information		Past Record		
		Snow Depth In Inches	Water Content In Inches	June 1 1965	June 1 Avg.	May 1 Avg.

Colorado

Cameron Pass	5/26	17	7.4	31.0	20.8	28.1
Willow Creek Pass	5/26	0	0.0	3.5	1.6	12.0
Park View	5/26	0	0.0	0.5	0.1	6.8
Columbine Lodge	5/27	0	0.0	10.6	3.8	22.9
Berthoud Summit	5/27	6	2.1	20.9	16.2	21.6
Red Mountain	5/31	0	0.0	31.6	18.5	31.4
Fremont Pass	5/27	1	0.4	19.0	3.8	19.5
Tennessee Pass	5/27	0	0.0	0.0	0.0	8.5
Vail Pass	5/27	0	0.0	15.0	3.2	16.3
Porphyry Creek	5/27	0	0.0	18.6	6.5	17.7
Mesa Lakes	5/28	0	0.0	7.1	--	15.9
Wolf Creek Pass	5/26	0	0.0	25.5	6.3	24.7
Wolf Creek Summit	5/26	46	22.8	48.6	24.6	30.2
Spud Mountain	5/31	0	0.0	31.2	12.3	23.8
Upper San Juan	5/26	2	1.3	27.8	4.2	30.2
Two Mile	5/27	15	5.0	21.2	14.1	19.8
University Camp	5/27	0	0.0	20.0	14.9	24.9
Milner Pass	5/27	0	0.0	7.1	--	12.1

Wyoming

Bottle Creek	5/27	0	0.0	1.5	--	11.1
Webber Springs	5/27	0	0.0	6.2	4.6	15.8
Old Battle	5/31	15	7.4	28.5	19.6	33.2
No. French Creek	5/31	18	8.7	29.3	24.4	20.4
No. Barrett Creek	5/31	0	0.0	16.1	10.9	20.4
Ryan Park	5/27	0	0.0	NS	0.0	7.7

Practically all snow has now disappeared from the medium elevation. Only a very small amount of snow remains at the high elevations. Unless summer rains are plentiful, streamflow throughout the state will be below normal. The Arkansas, and South Platte Drainages could have one of the lowest flows on record.

LIST of COOPERATORS

The following organizations cooperate in snow surveys for the Colorado, Platte, Arkansas and Rio Grande watersheds. Many other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

STATE

Colorado State Engineer
New Mexico State Engineer
Nebraska State Engineer
Colorado Experiment Station
Rocky Mountain Forest and Range Experiment Station

FEDERAL

Department of Agriculture

Forest Service
Soil Conservation Service

Department of Interior

Bureau of Reclamation
Geological Survey
National Park Service
Indian Service

Department of Commerce

Weather Bureau

War Department

Army Engineer Corps

Atomic Energy Commission

INVESTOR OWNED UTILITIES

Colorado Public Service Company
Public Service Company of New Mexico

MUNICIPALITIES

City of Denver City of Greeley
City of Boulder City of Fort Collins

WATER USERS ORGANIZATIONS

Arkansas Valley Ditch Association
Colorado River Water Conservation District

IRRIGATION PROJECTS

Farmers Reservoir and Irrigation Company
San Luis Valley Irrigation District
Santa Maria Reservoir Company
Costilla Land Company
Uncompahgre Valley Water Users' Association
Twin Lakes Reservoir and Canal Company
Trinchera Irrigation Co.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SNOW SURVEY UNIT
AG. ENGINEERING SHOP
COLORADO STATE UNIVERSITY
FORT COLLINS, COLORADO 80521

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with the Snow Survey"*

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